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ON ARTIFICIAL FOOD FOR YOUNG INFANTS.

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THE main object of this paper is to discuss some of the methods which have been proposed for getting rid of the objectionable reactions of cows' milk which tend to make it an imperfect substitute for human milk as food for young infants.

It has been usual to suppose that attention should be given chiefly to the chemical composition of milk, but the point which is of the greatest practical importance is, that the coagula of cows' milk are hard and lumpy, instead of being soft and flaky like those of human milk.

In order to avoid the formation of these coagula, small quantities of gelatine and starch are useful, although neither of them is directly nutritious, and either would be highly injurious if used in large quantities. The following treatise is far from being a complete compendium of the subject, and is by no means intended to serve as a popular guide.

The food and the feeding of the great majority of young infants happily does not require any interference on the part of physicians. The new-born baby, having been supplied with his only real needs, viz., a bath and a suit of clothes, ordinarily asks for nothing more than an opportunity to sleep for ten or fifteen hours, or if, ambitious to begin active life, he sucks his fingers and demands more serious occupation than sleeping, the breast of his mother stands ready to supply him with the luxury of an unnecessary meal (for a new-born child can never be really hungry), and if only a few drops of colostrum can be drawn from the nipple it answers every purpose, giving the child a chance to use the only organ he knows how to use with skill. The

Vol. X.—No. 5

irritation of the nipple from the sucking stimulates the secretion of the breast far better than a stream of electricity, while the whole system of the mother is revived by the pleasure of handling and suckling her offspring. In many cases a baby will wake after its first sleep of twelve hours, let its voice be heard for a few minutes, and, having had a bath and perhaps a spoonful of water to swallow, will go to sleep again complacently and sleep for another twelve hours.

The doctor has in such cases, then, only to warn the mother to accustom her child to taking its meals at regular hours, and to regard nursing not as a means of quieting it, but simply of supplying it with nourishment.

A certain proportion of mothers, however, are either unable or unwilling to nurse their children, and in such cases the want will be best supplied by a hired wet-nurse. Some babies thrive even better with wet-nurses than with their own mothers, but as a rule this is not the case; and it is much to be regretted, on her own account as well as on the child's, when a mother gives up nursing. If she can give only part of the necessary food, it is in general better that she should give as much as she can, supplementing it with artificial food, rather than leave the nursing of her child entirely to a wet-nurse.

There are, however, many objections to the employment of wet-nurses which need not be mentioned here, and many babies are from necessity or choice brought up "by hand," i. e. on artificial food. These children require a kind of food resembling human milk as nearly as can be, and the impossibility of finding any food which is as suitable as human milk, would seem to account, at least in part, for the great number of substitutes which are recommended on every side, each one being represented as the most perfect substitute ever invented. Among these are the following:—
Milk diluted with water, either with or without sugar.

Cream diluted and sweetened.

Whole No. 2322

Cream mixed with whey, and sweetened.
 Robinson's prepared groats.
 Ridge's food.
 Alkalized milk (with soda or potash).
 Boiled milk.
 Condensed milk.
 Liebig's malt soup.
 Savory & Moore's and other dry preparations of Liebig's soup.
 Loefflund's and others' liquid preparations of the same.

Meigs's and Pepper's milk with gelatine and starch.

Flour porridge, oatmeal porridge, corn starch, crackers and meal, and even seed-cakes and milk are also very often given to the youngest children.

The diversity of opinion with regard to these preparations shows that the question as to the proper food for infants has not been sufficiently studied, and I shall therefore endeavor to trace out the connecting links between our scientific and practical knowledge of the subject. Physiologists do not tell us as much as we would wish with regard to the digestion of the infant, as compared with that of the adult, but happily the food which Nature provides for babies gives us an invaluable guide in the preparation of artificial food.

Our object, then, will be to supply that food which most nearly resembles human milk in its reaction upon the digestive system of the infant. We must keep in mind that the chemical expression of any substance does not give us the least idea of the characteristics of that substance. Thus, a bit of carbon may be either a diamond or a piece of charcoal, yet no one has succeeded in transforming the charcoal into the diamond. This is especially true of organic substances. In this way, a combination which contains the same proportion of chemical elements as human milk, may react very differently from human milk on the digestive organism. It is only by bearing this fact in mind that we shall be able to appreciate the difficulties of imitating human milk successfully. Different kinds of casein differ from each other as much as do charcoal and diamonds.

From one point of view, nothing so nearly resembles human milk as the milk of the lower animals (cow, goat, ass, &c.). Goats' milk and asses' milk resemble human milk more nearly than cows' milk, as regards the proportions of the chemical elements, but since both the former are difficult to obtain, and asses' milk is hardly to be had in this neighborhood at all, they do not seem to have any practical advantages over

cows' milk, which is at all times easy to get and which will therefore be treated as the type of all.

The following remarks refer only to very young children, especially those less than three or four months old. At the age of six months the time of the greatest difficulties in artificial feeding has passed by.

Cows' milk usually contains, as is well known, much more casein and less butter than human milk, so the following rule for manufacturing human milk was easily arrived at:—Take the upper two-thirds of the milk after it has been standing long enough to allow the cream to rise, dilute it with water and add a little sugar. A very great many children have thriven well on this diet, and in such cases it is by far the most convenient food to give, but it was the failure of it in some cases that led to the manufacture of other preparations, with which the market is now flooded.

It is a common mistake of nurses, and I fear sometimes also of physicians, to believe that starchy substances boiled in milk make a more hearty, that is, a more nutritious food than milk alone. There can be, however, no greater error than to suppose that starch is, to an appreciable degree, directly nutritious. There is, as is well known, no starch in milk, nor any other insoluble hydrocarbon, and the digestive organs of the young infant are not adapted to changing any appreciable amount of starch into a soluble substance. A large portion of the starch ingested by young infants passes through the bowels unchanged.

The bad effects of amylaceous food show themselves not only at the time of dentition, but perhaps more decidedly at a later period, when children often develop symptoms of rachitis. Perhaps the most marked immediate effect is constipation, resulting in dyspepsia and irregular diarrhoea. The starch clogs up the intestines, till a slight catarrh comes to sweep out the hardened masses, after which the accumulating process begins, and again a catarrh gives another period of temporary, and, to a certain extent, natural relief; but this process cannot go on long without causing a very considerable irritation, and the child is fortunate if it escapes merely with distention of the intestines. It is much more likely to have to suffer for a long time with chronic catarrh of the intestinal tract. Let us, then, rid ourselves of the idea that starch is a part of the natural food of infants, and regard it as an entirely foreign substance. This is, however, no reason for refusing to

use it in food, if we find that in any way it may be made to assist digestion, and on this point I shall speak later.

On comparing the various chemical analyses of milk, we are struck by the variability of the amount of casein, butter and sugar contained in the various specimens, a fact which would of itself lead us to suspect that the mere difference in the relative proportions of casein, butter, &c., did not constitute the most important difference between the two kinds of milk.

Thus, the amount of casein has been found in various percentages, varying from 1.2 to 8.9 per cent., while the average is stated at 4.8 per cent. for cows' milk, and from 1.9 per cent. to 4.3 per cent. for human milk, the average being 3.9 per cent.

LIEBIG'S MALT SOUP.

Baron Liebig was led to attempt to make an artificial food for young infants by the fact that two babies, both related to him (one of them his own grandchild), were deprived of mother's milk. Both of the children thrived exceedingly well on the newly invented food.

According to his theory, all food could be divided into nitrogenous and non-nitrogenous substances, nitrogenous being used to support and nourish the body, non-nitrogenous to sustain the heat of the body. The latter is supplied in human milk by butter and sugar, and Liebig proposed to make up the deficiency of these in cows' milk by means of dextrine obtained from starch through the agency of malt. As is well known, the starch in grain is changed to dextrine by germination, and when the germinating grain is put with starch and subjected to a gentle heat, the same change extends to the starch. It is too much to demand of the digestive apparatus of the infant to effect these changes in the starch unaided.

Even though more recent investigations have shown that this theory of nutritive and combustible food can only be admitted within very narrow limits, yet this food, as suggested by Liebig, in fact suits babies exceedingly well, and, practically, too much can hardly be said in its praise. It has a sweet taste, and is almost never refused by the babies. Being slightly laxative, it is well adapted to children who are constipated from debility or unsuitable food.

It was observed by a lady who gave a great deal of personal and careful attention to her baby, that though his health improved steadily while taking Liebig's soup, he did not gain flesh nearly as fast as he did

with milk. This baby had been brought into a very dyspeptic and constipated state by the injudicious treatment of the monthly nurse, and no attention was spared to improve his condition. Several times Liebig's soup was given up and resorted to again, because he could not get along with cows' milk, and every time the same observation was made. I do not know that this has been noticed in other cases.

SUBSTITUTES FOR LIEBIG'S SOUP.

Both powders and liquid extracts are made, for which it is claimed that Liebig's soup can be made from them merely by the addition of milk. I believe, however, that Liebig has never sanctioned any of these preparations. Several powders are made in Europe. The only one that is brought to this country is that of Savory & Moore, who claim that it is recommended by Dr. Lankester and others, and that it is supplied to the royal nurseries of England. Even Victoria has given her recommendation! Perhaps we are not favored with the same quality which is supplied to the princes of England, but certainly that which comes to us is a most disagreeable preparation. It is really no representative of Liebig's soup, for it is full of starch, and contains little if any dextrine. It contains many small fibres of the husks, which must be irritating to the bowels, while most babies do not like it, and it is not well borne by the stomach. Older children can undoubtedly take it, as they can any preparation of starch, but for young infants it is very objectionable.

The only liquid extract which is to be had here, as far as I know, is that by Liebig in Dresden. The taste is more agreeable than that of Savory & Moore's preparation, but by no means as agreeable as that made according to Liebig's direction, directly from the malt. The extract is, however, recommended, as are also the others made in Europe. I have had no experience of them.* Some authors speak of the preparation of Liebig's malt soup as being very complicated. This is not practically the case. Any one who has once seen it made, will have no difficulty in making it again.

Condensed milk is a yellowish substance of the consistency of honey, with a very sweet taste. It gives a slightly gritty sensation in the mouth, and under the microscope is seen to be a granular mass crowd-

* Since this was written an attempt has been made to substitute Liebig's preparation for Liebig's soup at the Massachusetts Infant Asylum, but it was speedily abandoned, as the children who took it had violent attacks of diarrhoea.

ed with crystals of sugar. (Chiefly cane sugar, partly milk sugar.) The reaction is alkaline. It is made by evaporating fresh, sweetened milk in a vacuum. Whether any alkali is added, or whether it is alkaline because the milk is perfectly fresh when the process of condensation begins, I do not know. When water is added to it, the granular look fades out and globules of butter make their appearance, while the crystals gradually disappear. In the condensed state it does not ordinarily become acid, even when kept in a warm place, but when diluted it does not seem to keep sweet any longer than ordinary cows' milk. It sometimes seems to suit children who cannot take fresh milk. Whether this is due to the fact that being diluted just before using, it is each time equivalent to milk fresh from the cow, or whether its alkalinity makes it more suitable, I cannot say. It was quite evident from the experiments which will be cited that it does not digest more quickly than cows' milk. The taste is agreeable, and, as far as my experience goes, it is well borne by infants.

An interesting set of experiments by Biedert, of Giessen (*Untersuchungen über die chem. Unterschiede der Menschen- u. Kuhmilch*. Inaug. Dissert. 1869), develops some of the differences between human and cows' milk. This writer comes to the conclusion (purely theoretical, I believe) that a mixture of cream and whey, as recommended by Prof. Kehr, makes the food which mechanically most closely resembles human milk. This conclusion is drawn from the following facts: While the addition of a few drops of artificial gastric juice to human milk is followed by a precipitation of light feathery coagula, the addition of the same amount of gastric juice to cows' milk causes the precipitation of a coagulum which is large, continuous and hard, and which fills the whole vessel. If the milk be shaken during coagulation the coagula are smaller, but the small coagula do not dissolve any faster than the large ones.

He also reports that the cows' milk had to be diluted with twelve times as much water before it began to coagulate in a manner even similar to the human milk. He therefore concludes that the difference in the amount of casein did not account for the difference of coagulation. Nor was it caused by the different reaction, for acid added to human milk did not make the coagula less flaky, nor did the addition of alkali to cows' milk make the coagula less hard, even when the milk was made strong-

ly alkaline. He maintains that the coagulation set in while the milk was still alkaline. The only effect of the alkali was to delay the coagulation. Other reactions of cows' milk were very different from those of human milk. Excess of artificial gastric juice added to human milk either caused the formation of coagula which were speedily dissolved, or none at all were formed. In this case, when more milk was added, precipitation followed. The coagula of cows' milk, he reports as dissolving much more slowly. He therefore concludes that not pure cows' milk (Küttner), nor alkalinized nor diluted milk, nor that protected (Falger) in a milking apparatus from contact with the air, nor Liebig's soup, is the most appropriate food for young infants, but recommends that the milk should stand for twelve hours, when the cream is skimmed off, the remaining milk curdled, the whey mixed with the cream and a little sugar of milk added. That is, he concludes that it is only by removing the casein that we can avoid the unfavorable effects of it.

Having been unable to obtain anything more than a short review of the dissertation in which these experiments were published in detail, I have made use of the kind offer of Prof. Bowditch to go over some of the same ground again at the Physiological Laboratory of the Harvard Medical College. Biedert speaks of the easier coagulation of human milk after it is twenty-four hours old, but does not say anything, as far as I know, about corresponding changes in cows' milk. Cows' milk which is still warm coagulates in much softer lumps than that which has been exposed to the air for some time. Whether these soft coagula dissolve any quicker than the harder ones, I cannot say, as the cow that supplied me with warm milk went into the country before my observations were completed. I am disposed to think that Biedert lays too much stress on the greater ease of solution of human casein as compared with cows' casein. I found that large coagula from cows' milk dissolve much more slowly than the small coagula of human milk, but the smaller coagula made by diluting the cows' milk before coagulation do not have the same advantage over human milk.

I was also unable to confirm Biedert's observation that the addition of an excess of gastric juice had the effect of preventing the formation of coagula of human milk, or of dissolving them as soon as formed. A very large quantity of gastric juice was added to coagula from human milk without dissolving them except after many hours.

It is true that if an excess of hydrochloric acid be added, and the test-tube be shaken violently, the flakes of casein disappear; but in this case the coagula are merely broken up to a fine powder, and are not really dissolved, and the same change takes place without shaking, though more slowly. I shall show later that this is also the case with cows' coagula.

The casein from Borden's condensed milk, diluted to about the density of common milk before coagulation, did not dissolve so fast as the coagula from common milk.

It was found that the preparation, proposed by Meigs & Pepper, of milk with a small quantity of gelatine and starch, coagulated in lumps which were much softer and more flaky than those from pure milk, and the flaky coagula disappeared more rapidly than did the hard from pure milk. At the same time there was no evidence that they really dissolved any more rapidly. It was found that hydrochloric acid (of two per cent. or greater strength) caused all coagula to break up into fine, microscopic particles which give to the fluid again the appearance of uncoagulated milk, so that the fact of the disappearance of the lumps is not enough to prove digestion. If the fluid, in which the coagula has thus been broken up, be allowed to stand, a thick cloud rises to the surface which, at the slightest shake, falls and permeates the whole fluid; but if the casein be not only broken up, but digested, the cloud at the surface is very thin, by no means so white as the undigested one, and only sinks and mingles with the clear fluid after a violent shake, then giving it a translucent, gray look, with no resemblance to the appearance presented by the undigested mixture which is like pure milk. It would seem that where the casein is undigested, enough fat remains in connection with the fine particles of coagula to make it tend to the surface, although it can be shaken down very easily, but when the casein is digested, the fat rises to make a thin layer at the top, which, being much lighter than the fluid, is shaken down with difficulty. Casein from cows' milk does not, then, dissolve more slowly than the same amount of human casein, and it would seem, therefore, highly probable, that the casein of cows' milk is not objectionable because it is indigestible, but because it is naturally hard and irritating, and our object should be not to take it away from infants' food, thereby depriving the food of the only part which contains nitrogen, but to endeavor to keep it in the food and make it less irritating to the bowels.

In healthy children fed at the breast, the intestinal mucous membrane is never touched by anything hard. The coagula of human milk never contract into hard masses, and the natural dejections are not harder than hasty-pudding, though they are perhaps not more free from casein than many discharges of children fed with cows' milk, where the bowels are irritated by the hard lumps of casein. It does not necessarily follow that more casein of human milk is absorbed than of cows' milk, so long as the bowels still remain in a healthy condition, although from cows' milk we may find lumps of casein from the size of a millet seed to that of a pigeon's egg. The healthy discharges of nursing infants also contain large amounts of casein (Wiederhofer), (Emile Allix, Paris, 1867, fat fifty-two per cent., bile pigment with fat sixteen per cent., coag. casein and mucus eighteen per cent., fluid and waste sixteen per cent. [after Simon]). It is in order to make the reaction on the bowels, of cows' milk, more like that of human milk, and not with any idea of giving direct nourishment, that Meigs & Pepper recommend the addition of a small quantity of gelatine and starch, and the experiments above cited would seem to confirm this idea. Their process is as follows (Meigs & Pepper, *Diseases of Children*, p. 304):—

"A scruple of prepared gelatine (or a piece two inches square of the flat cake in which it is sold) is soaked for a short time in cold water and then boiled in half a pint of water until it dissolves, about ten or fifteen minutes. To this is added, with constant stirring, and just at the termination of the boiling, the milk and arrowroot, the latter being previously mixed into a paste with a little cold water. After the addition of the milk and arrowroot, and just before the removal from the fire, the cream is poured in, and a moderate quantity of loaf sugar is added. The proportions of milk, cream and arrowroot, must depend on the age and digestive power of the child. For a healthy infant, within the month, we usually direct from three to four ounces of milk, half an ounce to an ounce of cream, and a teaspoonful of arrowroot to a half-pint of water. For older children, the quantity of milk and cream should be gradually increased to a half or two-thirds milk, and from one to two ounces of cream. We seldom increase the quantity of gelatine or arrowroot."

RIDGE'S FOOD.—PREPARED GROATS.

Both of these are of service if used for the purpose just mentioned in very small

quantities. As food proper for young infants they are useless and injurious, being merely fine preparations of grain entirely deprived of the husks. When treated with iodine, under the microscope, each particle becomes intensely blue. Ridge's food is supposed to be made of wheat. The barley from which Robinson's groats are made, is supposed to be useful in as far as it contains more of the salts which are necessary to human milk than do other grains.

Farina, maizena and corn starch (which are different names for the same thing) may be used in the same way, their only disadvantage being that they easily become rancid, and contain but little gluten, while, of course, they are subject to the objection raised against all forms of starchy food, that, if used in too large quantity, they cause constipation, with its attendant train of troubles.

Cows' milk alkalinized with bicarbonate of soda or potash, is less often vomited than pure cows' milk, and under its use the dejections contain fewer and smaller lumps of casein; but this is not because the coagulation is put off for a very long time. The milk is speedily acidified by the gastric acid which is continually secreted in the stomach, for hard coagula in an acid fluid are often vomited in a few minutes after a meal of alkalinized milk. Probably the alkali, by neutralizing the acid temporarily, prevents the too rapid coagulation of the whole mass, and thereby prevents the formation of very large coagula.

Biedert's observation that the coagula of alkalinized milk were formed later, but were just as large and hard as those from acid milk, is not really opposed to this idea, for the test tubes used in Biedert's experiments were kept perfectly still, while the contents of the stomach are continually in motion.

Among the poorest people in Boston, one of the most common articles of food for young babies is seed-cakes and milk. The aromatic seeds are supposed to act as a carminative, and to make this form of food peculiarly suitable in cases of colic. The poor victim screams with stomachache, but his screams are only considered cries of hunger, and all he gains is the undeserved epithet of a greedy fellow and another spoonful of seedcake and milk.

No form of pap or porridge is suitable for children under six months. Porridge made of fine flour is very constipating and causes collections of hard feces in the bowels, which are carried off naturally from time to time by an attack of diarrhoea.

Oat meal is not so liable to constipate as much as fine flour, because the irritation caused by the husks of the grain stimulates the bowels continually. Even this irritation will, however, be too severe for the tender mucous membrane of young infants, and be the cause of an annoying chronic catarrh of the bowels. Its action on young babies is also very irregular and uncertain, and not at all as satisfactory as that produced on the digestive apparatus of older children and adults.

Drinks for children of arrowroot, sago, &c., are probably useless, except for the infinitesimal amount of nourishment which they contain, which is worth no consideration. On the other hand, an infant should not be allowed to suffer from thirst. Cool water is often taken with avidity, and after an obstinate attack of crying, a few spoonfuls are often enough to quiet the child completely.

Let us, then, bear in mind that the only proper food for a new-born baby is the milk of its mother; that her place is best supplied by a wet-nurse; that the great obstacle to the use of cows' milk is not the insolubility, but the irritating character of its coagula; that this may be avoided to some extent in many ways, among others by the addition of a little starch and gelatine for the purpose of effecting a mechanical separation of the particles of coagula; and, finally, that for any other purpose starch and gelatine are never to be used.

24 Marlboro' Street.

THE CIRCULATION IN SEA-SICKNESS.

By JAMES J. MACDONALD.

In an article which lately appeared in the *British Medical Journal*, the writer, Dr. Alderson, offers a theory for the explanation of sea-sickness, based on the changes which are said to take place in the circulation of the blood in consequence of the tossing of the ship, and on the effects of these changes on the brain. That an abnormal condition is produced in the brain in consequence of disturbed circulation is unquestionable. That the motion of a ship causes such a disturbance is doubtless true, and that sea-sickness is a result of this disturbance may also be true; but the reasons given to explain this abnormal condition seem very imperfect and unphilosophical. It will be evident upon consideration that the effects produced are not the result of the causes which he assigns.

The statements upon which the theory is

based are as follows: "If a barometer be carried out to sea in a calm, the mercury will rest at the same height as when on shore; but when the ship falls by the subsidence of the waves, the mercury is seen apparently to rise in the tube which contains it." And again, "anyone who has carried a mountain barometer, and has happened to let it descend suddenly, must have been sensible of a concussion of the mercury against the top of the tube, and must have felt and heard the blow. In fact, the mere action of walking is sufficient, by the alternate rise and fall of the hand, to produce this effect." This effect he explains thus: "When the rigid tube falls, the mercury having its own inertia, and not being attached to, or a part of, the tube, remains stationary—at least for a time; thus the tube is pushed down upon or over the mercury, and the concussion takes place." He then says, "exactly the same occurs between the brain and vessels on the one part, and the blood on the other. The approximately rigid brain and vessels are carried downwards, the blood remains by its own inertia, and the consequence is to crowd blood into the vessels of the brain, and so press with increased force, producing a certain shock; this shock and the attendant pressure produces sickness and vomiting." He adds a quotation from Dr. Wollaston that "sickness by swinging is evidently from the same cause as sea-sickness."

This inertia of the blood, then, is the only cause assigned for the congestion or shock of the brain, and the only reasons advanced to prove the existence of such a congestion are, the peculiar kind of vomiting which takes place, the unpleasant sensation accompanying the forward motion of a swing—for then, he says, the blood has the greatest tendency to move from the feet towards the head—and the fact that inspiration during descent gives relief by assisting the return of blood from the brain.

To show that inertia of the blood is not the cause of congestion of the brain, a brief allusion to the natural laws involved in the matter will first be in place. When mercury in a tube is prevented from falling to the earth, it presses down upon the body which sustains it; this pressure is equal to the force of its attraction by gravity and is its weight. If the tube be dropped, it no longer sustains the mercury whose pressure upon it instantly ceases. If the tube be suddenly stopped in its descent, there will be an immediate pressure on it of the weight of the mercury and, in addition, the

momentum which it has acquired during its fall. If again from being stationary it is suddenly pushed upwards, there is an increased pressure on the tube. To illustrate this, let a ball suspended by an elastic rubber band represent the mercury, and the rubber band the tube, if the hand from which the ball hangs be suddenly raised, there will be a greater strain on the cord which will be stretched in consequence, because a force which raises the ball must be greater than that which merely prevents it from falling. Now in the case of a tube partly filled with mercury, if a force in addition to that of gravity causes its descent, the mercury being free, will, though falling towards the earth, rise in its relation to the tube, being impeded only by friction against the sides; under no other condition will it rise, except, when simply falling, the pressure of the upper on the lower layers being removed, it may, in virtue of its elasticity, expand to an infinitesimal degree. By remembering that the force of gravity will, other things being equal, draw all bodies to the earth with equal velocity, and by also reflecting that on a swing or a ship no force is causing the descent, but that of gravity, it will at once be evident that the blood in the vessels cannot be supported by inertia, any more than the rest of the body, and, consequently, that its relation to the containing vessels, will, as far as gravity is concerned, be the same, except that its weight is no longer sustained by them. This briefly, as effectually, disposes of the supposition that inertia of the blood causes congestion of the brain.

Before considering the abnormalities induced in the circulation by the rise and fall of a ship at sea, I will briefly allude to its natural condition. The heart, in forcing blood to the brain, has to overcome a downward pressure exerted by the column of blood above it. At the same time, the returning current of venous blood is accelerated to a degree, the equivalent of the resistance to its ascent; these two effects, then, may be said to balance each other. It is the same with the circulation below the heart; gravitation assists the downward current and opposes its return. Now if the body, when erect, be allowed to drop, the blood is no longer pressed downward in relation to its vessels by gravitation, because the vessels themselves descend with equal rapidity. In this condition the heart has to overcome no weight of blood above it; hence, owing to this diminished resistance, the blood will be propelled upwards with increased force; at the same time the

downward venous current, having no longer the assistance of gravity, would tend to become more sluggish, and must depend entirely for its flow on the *vis a tergo*. This pressure from behind, and the resistance to the venous flow, being both greater than normal, the pressure on the cranial vessels must be much increased, causing distention and congestion. In the part of the body below the heart, the descending arterial and ascending venous blood is affected in like manner. If the vessels were inelastic tubes the difference would equalize each other; but they are, on the contrary, very elastic, and under normal circumstances are distended by the weight of this contained blood, as well as by the impelling force of the heart. Now, however, the latter cause alone operates; and, as a consequence, they are to a certain degree contracted; the immediate result of which would be an acceleration of the venous current and resistance to the flow of arterial blood, and a final arterial obstruction alone. In other words, there is an anemia in those dependent parts whose vessels normally sustained a weight of blood, and a hyperemia somewhere else. This impediment to the circulation below the heart would tend to increase the fullness of the brain, and also of the lungs. A hyperemia of the lungs would explain the "instinctive deep inspiration" during descent, which Dr. Alderson attributes to another cause, for an increase of blood would demand an increased amount of air for its oxygenation.

Besides the above conditions, there is also another cause operating to produce a "shock" on the brain. When the descent of the body ceases, and it commences to rise with the ship, the weight of the blood, as well as the momentum acquired by its fall, must increase to a considerable degree the pressure on both arteries and veins, distending them, and causing a congestion which would be most marked in the lower parts, with a consequent partial anemia of the brain. When the ship again falls, the excessive pressure on the lower vessels is removed; they contract on their contents, become comparatively empty, and the upper parts are again suddenly overfilled. The abnormal pressure on the lower veins, which are the peculiar seat of varicosity, would here naturally suggest the inquiry as to whether sailors are particularly liable to this disease, if indeed it may be caused by pressure.

The reasons here shown for a congestion

and shock of the brain, and the changes described in the general circulation, must necessarily be modified by many causes; for example, the extent and rapidity of the rise and fall of the body, the tortuosity of the bloodvessels, and many variations which might occur in the propelling power of the heart, or in the condition of the vessels; as, for instance, venous congestion of the heart, impeding its action, or a vascular constriction through nervous influence. It is impossible to determine, theoretically, the extent of these modifications. The actual state of the circulation in such cases, being subject to so many varying influences, can only be accurately demonstrated by experimental observation. If sea-sickness is really caused by the abnormal action of blood on the brain, the public is indebted to Dr. Alderson for calling attention to the fact, and a trial of the remedy suggested by him will doubtless prove very beneficial.

Harvard Medical School, June, 1872.

Reports of Medical Societies.

SELECTIONS FROM THE RECORDS OF THE OBSTETRICAL SOCIETY OF BOSTON.

SECRETARY, W. L. RICHARDSON, M.D.

JAN. 13th, 1872.—*A Case of Labor in which Long Forceps, Turning, Craniotomy, Decapitation and Cranioclasm were each, in turn, resorted to before Delivery was effected.*—Dr. Sinclair reported the case.

"Mrs. —, æt. 38, married seven years, in her first pregnancy, having a long body, short lower extremities, fleshy, strong and active, never sick, was seized with slight labor pains and a considerable *show* early in the evening of December 8th. These pains continued at intervals, from ten to fifteen minutes, for the next twenty-four hours, without any descent of the foetal head. She was then examined, under ether, by Dr. Read and myself. Although a pretty sharp sacral promontory and an unusual firmness of the foetal head were found, yet there appeared nothing to warrant immediate interference, as the pelvic cavity seemed sufficiently large. The os was soft and dilated, so that the hand could be passed into the uterus. An opiate was given, hypodermically, which averted the pains for some hours, with the hope that on their return they might be sufficiently strong to effect delivery. Tolerably strong labor pains did recur as expected, but failed to

push the fetal head into the pelvic inlet, but pushed it over the pubes, against which it impinged on every pain. During the interval of pain the head could be felt above the brim and quite mobile. This state of things lasted four full days, the patient, meanwhile, continuing in the most admirable condition of health, strength and spirits, with vaginal secretion abundant, and os uteri dilated. At this period, the membranes ruptured during a pain. Soon after, the uterine contractions became more vigorous and frequent, and a slight attempt on the part of the head to engage itself in the brim was perceptible. In this way, eleven hours more passed, when it was evident that delivery by the natural process was impossible. Dr. Read was again sent for in consultation.

"The patient was etherized and forceps applied with difficulty. The fetal head lay in the second position above the brim, a hand on the left side. The strongest traction was made without effect and the instruments were withdrawn. Turning was then resorted to, but, although the patient was deeply etherized, the uterus was so firmly contracted about the child that this means of delivery was for the time abandoned. Never before came under our observation a uterus so rigidly contracted; although the patient was fully etherized, it continued as unyielding as a vise. The slightest attempt to enter the uterus was resisted by violent spasmodic contraction, extending to the vagina, which embraced the hand and wrist nearly as tightly as the womb itself. The child was dead. Craniotomy was next attempted, but the high position of the fetal head (a small segment only of the cranium being engaged in the brim), its firmly ossified bones, the vaginal contractions and the mechanical difficulty which stood in the way of successfully puncturing the skull, rendered this effort also a failure; the perforator could not be introduced in a line with any diameter of the cranium. It is scarcely credible, theoretically, that the simple operation of craniotomy could not be performed in this case, but practically it was ineffectual.

"The means of delivery were being exhausted, and recourse was had again to version. After an hour or more of hard work, a foot was seized, and by means of external and internal manipulation the body was made to rotate so far that an extremity was dragged beyond the vulva when it was secured by a piece of strong linen towel and pulled upon by the combined efforts of us both. The opposite and flexed extremity was

dragged upon by a blunt hook inserted in the groin. The lower extremities being disengaged, the body and upper extremities gave little difficulty comparatively, although the blunt hook was required to free an arm. So far matters were tolerably promising, but when the fetal head came to the brim, it could not be made to descend further. Traction on the child's body separated the spinal column at about the junction of the cervical with the dorsal vertebrae. In order to give more room, the child was severed from its head as high up as possible. The head rolled about in the uterus, but was sufficiently manageable, for it could be fixed by the hand externally while several openings were made in it and the brain evacuated, but so firm were the bones that no collapse took place. Again and again the sharp hook was inserted into the most available places; pieces of bone were broken off and removed, but still delivery was delayed. At this stage of the labor, Dr. Read's strength and my own gave out, and we sent for Dr. Cheever. It was, moreover, ascertained that the base of the skull offered the chief resistance to delivery, and that must be broken up by the cranioclast. After a good deal of trouble this instrument was applied, and after some pulling and much crushing the imprisoned head was liberated, to the great relief of us all. The delivery consumed six hours, and was the most difficult we ever met with.

"On suspension of etherization, the patient very soon recovered her consciousness and spoke with those about her; but she complained of want of air, of a feeling of suffocation, which continued for more than an hour. She took food, and appeared pretty comfortable when visited several hours after her delivery, although her pulse and respiration were rapid. It did not seem possible, however, that she could rally from an ordeal so terrible. She slept a little, and was quite intelligent until within a few hours of her death, which took place about 4, A.M., the following morning. No adequate idea of the many difficulties in this terrible case can be given by any verbal or written description."

Dr. Sinclair said that the promontory of the sacrum in this case was somewhat more than usually prominent, and there was also slightly increased angularity of the pelvic arch; but there did not seem to be much diminution of the antero-posterior diameter.

Dr. Read, who assisted Dr. Sinclair, said he did not detect anything very unusual at the first examination, but subsequently he

noticed the abnormal projection of the promontory of the sacrum. The contractions of the uterus and vagina were very powerful, and painful to the hand, and these, together with the sacral projection, the pubic angularity and the "ossification" of the head (the fontanelles being entirely obliterated), caused the labor to be one of the most terrible he had ever witnessed. The head could not be made to enter the brim at all; it slipped forward over the pubic arch so that the forceps could not be fairly applied, consequently nothing could be effected with that instrument.

Dr. Fifield asked what form of perforator was used—straight or curved?

Dr. Sinclair replied that the common straight instrument was used.

Dr. Fifield asked in what part of the head the "hold" was obtained.

Dr. Sinclair replied everywhere.

Dr. Read thought that the chief entrance was in the right temporal region.

Dr. Fifield asked if it was impossible to perforate in the occipital region.

Dr. Read replied that it was not, so far as he knew.

Dr. Fifield said that he thought that success in extracting the head after perforation, often depended upon the point and line of traction; he should not try to make the chin descend, and traction should not be made in that line. He mentioned two cases in which traction from the internal occipital protuberance succeeded after delivery by this method had been considered almost impossible. He also thought that if it were possible to take hold of one of the malar bones, the chin became flattened, and delivery could be effected. There was nothing in the history of this case to show that the pelvic contraction prevented delivery, and such being the case the obstruction must have existed in the muscular contractions. He did not think that the evacuation of the brain, in itself, did much in aiding delivery. He mentioned a case to which he was called, in which rupture of the uterus had occurred, and the child had escaped into the abdominal cavity. He went some distance for his instruments; he passed his hand into the cavity of the peritoneum, got the feet and brought the body down, but could not deliver the head. Perforated and evacuated the brain, and labored for two hours, but could not succeed in completing delivery. Finally, he fixed the crochet in the internal occipital protuberance, and delivery was accomplished almost instantly. It had occurred to him that there might be some danger in this

method of traction, as the crochet might perforate the occiput and wound the bladder.

Dr. Buckingham asked whether the severe contractions commenced before manual interference was begun.

Dr. Sinclair replied that they did not.

Dr. Abbot asked if the sutures of the child's head were "ossified."

Dr. Sinclair said they were not; but the bones were hard and thick.

Dr. Richardson spoke of Braun's trephine perforator as being specially adapted to such cases, in consequence of its vaginal curve.

Hæmorrhage after Abortion.—Dr. Fifield reported the case.

Abortion occurred at the third month. The woman flowed for two weeks. The next two weeks there was no flowing. At the end of this time hæmorrhage again commenced, and continued for two months, at the end of which time the patient was seen by Dr. F. Although she had been under medical care a portion of the time, no vaginal examination had been made, which led Dr. F. to report the case. Gallic acid had been given. She was now much debilitated; pulse feeble; palpitation of heart; uterus somewhat enlarged and retroverted. Ergot was given, and cold water injections administered per rectum. She recovered rapidly.

Bright's Disease with Pregnancy.—Dr. Fifield reported the case.

The patient was a young woman in the country, and was seen in consultation. The case had been diagnosticated as rheumatism by her first medical attendant. The gentleman next in attendance, whom Dr. F. met, told him that the diagnosis was settled—"typhoid fever followed by pneumonia." The woman was now six months pregnant. Pulse 100; temperature 96°; sordes on teeth and gums; crepitation at base of left lung; albumen in the urine. She had vomited for the last two months, but there was no œdema. Dr. Fifield advised premature delivery, which was accomplished the same night. The child lived six or eight hours. The mother recovered.

Dr. Wellington asked in regard to the cause of hæmorrhage in the first case.

Dr. Fifield replied that it was a case of subinvolution of the uterus.

Dr. Abbot asked Dr. Fifield what directed his attention to the kidneys in the second case.

Dr. Fifield replied the sordes together with some of the other symptoms—particularly the temperature, absence of physical signs of pneumonia, &c.

Dr. Abbot asked if there was any odor of ammonia in the breath.

Dr. Fifield replied that there was not, but that he had seen cases in which it was very marked.

Tedious Labor from Mal-presentation; Delivery by Forceps.—Dr. Wellington reported the following case, seen in consultation. The patient had been in labor four days. For the first two or three days of this time she was in charge of an irregular practitioner. The head had entered the pelvis transversely, with the face to the right, and came down to the perinaeum without rotating. Dr. Wellington found it near the outlet, with the face still to the right. As no progress was being made, delivery was effected, without much difficulty, with the forceps, by the attending physician, one blade being applied over the forehead and the other over the occiput. The woman suffered subsequently from retention of urine, and at the end of a week after delivery, pus appeared in the urine. He had seen two cases within a year in which the head was delayed, and pus appeared in the urine at the end of a few days, attended by pain in the hypogastrium and vesical tenesmus.

Dr. Lyman inquired whether there was any attempt to rotate after applying forceps.

Dr. Wellington replied that the attending physician attempted to rotate, and had made the attempt previous to the application of forceps, but without success.

Dr. Abbot said that he had seen a case of pelvic cellulitis following difficult labor, in which pus was discharged with the urine. There was a tumor above the pubes extending from the median line several inches to the right. He thought that an abscess had opened into the bladder. The patient also had cystitis, but recovered after a long illness.

Dr. Fifield referred to the cases that had been reported in which entire casts of the vesical mucous membrane had been thrown off.

Vaccination of newly-born Children.—Dr. Lyman asked in regard to the practice of gentlemen in respect to the time of vaccinating newly-born children when variola was prevalent.

Dr. Minot said he once attended a woman in labor, whose husband was ill with varioloid at the time. He vaccinated the child on the day of its birth. Soon after the vaccine disease was at its height, varioloid appeared; there were six or eight papules only, and scarcely any constitutional symptoms.

Medical and Surgical Journal.

BOSTON: THURSDAY, AUGUST 1, 1872.

INFANT MORTALITY.

THE time of the annual massacre of the innocents is upon us. With the return of the mid-summer heat, recurs the scourge which decimates the infancy of the cities, relentlessly choosing as its special victims, the children whose existence dates since the last autumnal equinox. Coincident with the hot term, the increased fatality, as shown by the weekly death-reports in the towns and cities, may well represent the relative temperature. Whether we call the epidemic cholera infantum or by some more exact and distinctive title, the figures which from season to season show the sacrifice of infant life from the intestinal diseases of the summer months are frightfully suggestive, and raise the wish if they do not point out the way for some interposition to arrest the destruction.

The topic is an old one; but it does not lose in interest or importance with its age. The statistics of infant mortality in the summer months are no less impressive than they were years ago; rather, they become more so with their yearly increase. The last annual Registration Report of Massachusetts indicates that cholera infantum was for that year (1870) the second in the list of the fatal diseases in this State, standing next to consumption and in a position of deadliness it never before occupied; it shows, also, that the percentage of mortality from the infantile enteric diseases is increasing to a degree which may well excite alarm.

These ungarished facts need no sentimental coloring to enforce their import. We leave it to the moralist and the philanthropist to indulge in the homilies and to point the social lessons which these significant reports of the registrars of our cities suggest. The public demands of us, as physicians, to find some way to stay, if possible, the fatal tide, to show the means by which the fearful mortality may

be prevented. The fathers and mothers of these scores of children who die every week not only ask us why we do not restore their little ones who sicken, but their common sense puts upon us the responsible guardianship of the public health, and insists that we shall indicate the preventive as well as the curative measures. We may not view the matter with the cool indifference of Malthian speculation; the profession, as a body, has not yet reached that fatalistic degree of expectancy in its theorizing which accepts results as inevitable, and sees in the wholesale mortality of children a natural provision for the restriction of population within proper limits.

It is lamentably discouraging, indeed, that the lessons which have been taught over and over again by medical men with regard to public hygiene are so slowly learned, so stupidly applied in our cities. The cautions which have been reiterated in former years that public cleanliness promotes public health, that filth is one of the strongest and most faithful allies of disease, appear in the main to have fallen on listless ears, and, judging by results, no practical, earnest effort is made to take seasonable advantage of the repeated warnings. Against this municipal indifference, the emphatic facts contained in the weekly mortality reports make an appeal which medical testimony is prepared to confirm. The majority of the three hundred deaths from cholera infantum in this city last month tell of the prostrating effects of the prolonged and extraordinary heat and of the debilitating influence of poverty, conditions which are both irremediable; but they also tell a terrible story of municipal neglect, a story of overcrowded tenement houses, of reeking courts and alleys, of filth in every form allowed to gather and exhale its pestilential stenches in unventilated corners. Mankind cannot well tolerate such a condition and live in health; and the youngest and the feeblest—the children, whose power of resistance to the depressing influence is the least, succumb the soonest.

This wholesale filth, on the ground and in the air is, to a degree, preventible. But the remedy rests not with physicians who

see the results and sign the death-certificates. Here is work for a vigilant, active, efficient Board of Health, whose executive powers are properly defined and wisely endowed, and whose members are selected as regards their character and numbers, with a view to their responsible functions and not for political manipulation. Such a Board would find enough to do in our city, and the Aldermanic dignity would be spared the disagreeable necessity of attending to such trifles in season and out of season.

Of perhaps equal importance with the conditions of dirt and over-crowding to which we have alluded as, in a measure, remediable causes of disease and death, and to be corrected so far as may be because, in every respect, they are bad in themselves, the matter of insufficient and improper food is a very essential factor in increasing the summer mortality of infants. It is a subject concerning which physicians ought to feel themselves particularly responsible. The full discussion of the subject which is presented in Dr. Putnam's elaborate paper leaves little more to be remarked. It is a fact well recognized that artificially fed children are reared with the odds against them, a fact attested by the myriads of contrivances which inventive skill has presented for supplementing and supplanting the natural aliment. This search after the most perfect substitute for mothers' milk is stimulated by a shameful practice, less common, we believe, in our own country than abroad, yet too prevalent here, of weaning children at their birth, and subjecting them to a course of diet as varied as it is improper. We wish we could believe this inhuman custom in the interests of fashion and of social enjoyments were on the decline. The habit of leaving the diet of children to the judgment of untrained nurses, who are forever desirous of giving them something "hearty," entails an indescribable degree of peril to infant life, and the wonder is that digestive organs so sensitive to the almost imperceptible changes in the quality of maternal milk can even tolerate the first stages of the gauntlet of indigestibles which is forced upon them. Let physicians emphatically protest against the villainous

practices of "experienced" nurses, so-called, and avert the perils inevitable with the catnip, the molasses and water, and the other more unmentionable mixtures which are crammed down the throats of newly-born babies.

Dr. Putnam's essay illustrates, besides its obvious practical bearings, the obligation which clinical experience is daily incurring to experimental research. The idea has, of late years, been developing that all amylaceous food is harmful to nursing infants; but the chemist and the microscopist demonstrate with distinctness not only that starchy diet in a certain amount is not hurtful, but they show, also, just what quantity will, if added to artificial food, assimilate it to the natural nutriment. Thus closely are scientific observation and practical experience allied and mutually dependent.

POISONING BY VANILLA.—A physician in Worcester County, in this State, in speaking recently of the cases of poisoning by vanilla flavoring, reported in the *JOURNAL* of June 27th last, and of the omission in that report of any mention of the symptoms shown in the cases, stated that in his own family evident and violent poisoning from a similar cause recently took place. As in the instance referred to, the sickness came on after eating custard flavored with vanilla. Five members of the family were affected, all of whom had partaken of the custard, and two who had not eaten escaped. The symptoms were severe diarrhoea, with violent pain in the lower abdomen, without much gastric disturbance.

VACCINATION IN CHINA.—M. Martin, Physician to the French Legation at Pekin, has published a series of papers in the *Gazette Hebdomadaire* of Paris on Chinese Medicine. The facts and remarks are very interesting. As to vaccination, M. Martin states that its use is pretty general in the seaports, although it penetrates with difficulty into the interior. The mandarins, however, who perceive the benefits of Jenner's discovery, favor the spread of vaccination, and they succeed by persuading the people that it has been imported by Mussulmans or discovered by the Emperor. The latter assertion is all-sufficient.

From Continental Journals.

STRANGULATED HERNIA REDUCED BY TAXIS AFTER PUNCTURE OF THE INTESTINE.—At a meeting of the Académie de Médecine held May 21, 1872 (*Jour. de Méd. et de Chir. Prat.*, June, 1872), M. Demarquay exhibited a young man in whose case the operation was attempted of puncturing the strangulated loop of the intestine, and removing the liquid and gas contained therein. The patient, who had been the subject of a congenital inguinal hernia, having passed the day in company with his family at Versailles, had become quite fatigued, and in the course of the evening was seized with severe abdominal pains, attended with vomiting. At the same time, he became aware of the presence of a swelling of considerable volume in the left groin. As the pain and vomiting still continued on the following day, a physician was summoned, who advised his immediate removal to the hospital, where he was admitted at 6, P.M. Here the tumor appears to have been subjected to a pretty vigorous manipulation by the *interne* on duty, who, failing to effect a reduction, contented himself with making an application of ice. The patient passed a wretched night, and on the following day the symptoms were all aggravated. The tumor had now increased in volume and become elongated, so as to rest in immediate contact with the testicle. M. Demarquay, not having previously met with very good success in operating for strangulated hernia, attempted to effect a reduction by means of taxis, but without any result. He then decided to remove the liquid and gas contained in the intestine. A small trochar was therefore introduced into the centre of the tumor, and the liquid contents of the strangulated portion of the gut entirely drawn off by the aid of the *aspirateur*. In this manner about 120 grammes of liquid were withdrawn, besides a considerable amount of gas. The swelling at once subsided completely. The trochar was then withdrawn, and the intestine left to itself for a few moments, in order to see if additional liquid and gas would find its way into the loop, and thus cause the swelling to return. As there was no indication that the intestine would be refilled, a very slight amount of pressure was applied to the seat of the tumor, which at once caused the strangulated intestine to withdraw into the abdominal cavity. The patient was confined in bed for several succeeding days,

and kept under the influence of small doses of opium. He made an excellent recovery, without exhibiting any subsequent symptoms, with the sole exception of inflammation of one testicle, the result of the repeated manipulations to which he had been subjected. This operation of puncturing the intestine to facilitate reduction by taxis has now been attended with favorable results in several instances, and is worthy, therefore, of a trial in those cases in which sufficient time has not already elapsed to allow of mortification.

In the following number of July are published two additional cases of strangulated hernia successfully treated according to the method of Demarquay above described, by puncture and pneumatic aspiration, and reported by Dr. Chauveau, of Courtelain.

N.

CONTRACTION OF THE SARTORIUS FOLLOWING A RUPTURE.—M. Fleury, of Clermont, has recently reported a case (*Jour. de Méd. et Chir. Prat.*, June, 1872) of contraction of the sartorius muscle occurring in a young woman 27 years of age, sufficiently robust, but subject to attacks of rheumatic pains. Having stooped over to light a fire, she was about to arise when she felt something give way with a crack in the fold of the left groin, so that she was unable to get up. Three weeks after the accident, she entered the hospital at Clermont. Upon examination, the circumference of the left thigh was found to be about one inch less than that of the right; it was, moreover, flexed upon the pelvis, and could not be extended. Upon feeling of the limb, a contracted tendon could be distinctly felt, having its origin at the anterior superior spinous process of the ilium, and extending to the middle of the inner aspect of the thigh. The contracted muscle was not the seat of pain, but became firm and tense whenever the attempt was made to extend the limb. To overcome the deformity occasioned by this lesion, the tendon of the sartorius was divided just beneath its point of origin at the anterior superior spine of the ilium, and the limb was then forcibly extended without occasioning any great amount of pain. At the end of ten days the woman was able to go about, although the limb had not yet recovered its former strength.

N.

PASSAGE OF A FORK FROM THE STOMACH TO THE THIGH.—Some of the most anomalous surgical cases have been the result of injuries self-inflicted by persons suffering from

some form of dementia. Dr. Le Tellier reports (*Journal des Connaissances Méd.-Chir.*, *Allg. Med. Cent. Zeitung*, April 24th, 1872) a case of a woman living at Javerney (Haute Saône) who became partially insane at the age of 30, after which she resorted to various methods to destroy life, which led her on several occasions to try the effect of swallowing a fork. The first experiment with this instrument appears to have been made in January, 1836. She was found by the surgeon with the handle of the fork in the œsophagus and the iron points firmly imbedded in the hard palate. The foreign body was removed, not without considerable difficulty. In April, 1848, she was again found in precisely the same predicament, with a fork in the œsophagus, and it was again successfully removed. In November of the same year (1848), she began to complain of excruciating pain in the right hip and thigh, which deprived her of sleep and prevented her from walking. Upon examination, no lesion could be detected to account for her suffering, and the diagnosis was therefore made of ischiatic neuralgia. All treatment proved utterly inefficient, and her condition remained unchanged till January, 1852, at which time her pain became unsupportable. She had now been confined to bed for two years, and had almost lost the use of her limbs; her pulse was scarcely perceptible, appetite disappeared, great emaciation, inability to sleep, œdematous infiltration of the lower extremities, diarrhœa and high fever towards night. There was now detected, on the upper third of the right thigh near the trochanter major, a distinct swelling, painful upon pressure, not fluctuating, not accompanied by heat or redness of the skin, but covered with large blue spots, which gave it the appearance of marble. The patient, having now a lucid interval, confessed to a third and successful attempt to swallow a fork, and expressed a belief that all medication would be unavailing till she was in some way relieved of this foreign body. Poultrices were continually applied to the swelling, and, in the beginning of February, an opening was established, from which an abundant purulent secretion was discharged. Owing to the nervousness and sensibility of the patient, it was found impossible to introduce a probe into the wound, but, upon palpation, the presence of a hard, pointed substance was detected, and a few days later one tine of the fork was brought to light, and was followed by a second tine on the next day, affording sufficient proof of the correctness of her

admission. It appeared from her story that this third attempt was made in April, 1818, shortly after the removal of the second fork. She suffered no decided inconvenience from its presence until it had passed from the stomach and intestine, and had worked its way into the region of the great trochanter. When three times had become visible, she consented to submit to an operation by which this portion of the fork was removed. There remained behind, however, one tine and the entire handle, the removal of which was not attempted, owing to her great prostration. Her death ensued eight days after the operation. Permission could only be obtained for a very limited autopsy, extending to that portion of the body in the immediate vicinity of the wound. This was found to be the seat of numerous abscesses. A part of the remaining tine was discovered here, and a small fragment of the handle. It is probable that this large foreign body passed out of the pyloric orifice of the stomach, then perforating some portion of the intestine, gravitated towards the lowest part of the pelvis, till it finally found its way to the great ischiatic foramen, and thence to the deep muscles of the upper part of the thigh, causing neuralgic symptoms by pressure on the sciatic nerve.

Dr. Adelman, of Berlin, in alluding to the reports of a similar accident (in which a fork had been swallowed), remarked that there were six other cases upon record, one of which, happening in Russia, had come under his own personal observation. One of these instances had occurred in Germany, and had been made the subject of a special dissertation. The remainder had been reported either in France or in Russia. In one instance the fork passed per rectum. In another case, where a workman swallowed a four-tined fork, during an attack of delirium tremens, severe gastric symptoms were produced, with fever and adhesions between the stomach and peritoneum. An abscess was subsequently formed on the left side, in the region of the false ribs, from which the fork was finally extracted. N.

SEVEN TÆNIE IN ONE PATIENT WITHOUT SYMPTOMS.—The case is reported in the *Journal de Médecine et de Chirurgie Pratiques*, July, 1872.

The patient, a hospital nurse at Lariboisière, aged 25 years, had been ill for a few days with general lassitude, with pains in the epigastrium and left chest. There was no morbid manifestation to draw attention to the alimentary canal; and none of his antecedents led to the suspicion that he was infested with intestinal worms. One

morning he noticed in his dejections, flat, ribboned and white masses, which proved, on examination, to be fragments of a tænia. He was ordered twenty grammes (about five drachms) of koussou, very finely powdered, infused in about eight ounces of boiling water and allowed to stand over night. He took the whole, powder and all, warmed up and well mixed. In an hour and a half, he experienced a little intestinal commotion, and some colic pains. A defecation soon followed, with considerable masses of interlaced tæniæ. A second defecation, half an hour afterwards, brought away still more. A dose of castor-oil, now given, produced liquid evacuations without further fragments of worms.

On examination of the vermicular mass under water, seven heads of tæniæ were detected, which were also verified by the microscope. The tæniæ, unrolled, measured from one and a half to nine yards in length; or a total, with the other fragments, of about twenty-two yards.

The next day, the patient returned to his occupation. On further inquiry no indications could be discovered, which, if previously known, would have led to a diagnosis. He had never partaken of raw meat, nor often eaten sausages.

The case is remarkable for the number of entozoa, and for the readiness with which they were dislodged. The latter may be due to the fineness of the powdered drug and the long time allowed for its infusion. C.

INFLUENCE OF VIOLET LIGHT UPON THE DEVELOPMENT OF PLANTS AND ANIMALS.—The influence of different shades of light upon the growth of flowers has been made the subject of experimental investigation by both Hunt and Pöcy, while gardeners have learned, upon trial, that certain plants flourish more vigorously when exposed to a light which has passed through violet-colored panes of glass. This principle has now been extended by Gen. Pleacanton to animals. (*Gazz. Med. Ital.-L'Ippocratico*, vol. xxxv., No. 3, *Allg. Med. Cent. Zeitung*, April 24, 1872.) The experiment was tried of exposing a certain number of animals to violet rays of light, and others to ordinary sunlight, all being alike under cover. At the end of four months, it was found that the average increase of weight of the former animals over the latter amounted to thirty-four pounds. It is therefore proposed to place blue or violet panes of glass in the windows of some of the hospitals for children, with the idea of ascertaining whether a similar beneficial effect may not be produced on the human system by colored light. N.

Medical Miscellany.

A LUCRATIVE PRACTICE.—It is stated on good authority that Sir William Gull, of Guy's Hospital, London, has the most lucrative practice of any living physician, it being asserted that his professional income last year was £25,000.

THE MEDICAL PROFESSION IN GERMANY.—A private letter from Southern Germany, alluding to the abject condition of the profession there, adds:—"It makes one's feelings revolt to see how people cringe here; a great many medical men allow themselves to be treated not any better than lackeys." This is from a competent judge, and presents a different picture from that usually imagined of the profession "protected by law."

DEATH FROM OVERWORK.—The *New York Tribune* thinks much of the great mortality from sunstroke can be traced to culpable carelessness. Thus:—

It is not the lazy or rank-blooded man who is so often struck down, as the workingman, ignorant of ordinary precautions, or the student or excited business man, whose brain is already on fire and whose nervous system is prostrated by overwork. Our ordinary murderous high-pressure system shows its nature nowhere as in the recent records of mortality. Directions for care in exposure, dress and diet, are well enough in their place; but why should we invite death at every moment of our adult lives to give him this cold shoulder at the last? The proportion of children among those stricken down by the recent heat was appalling. Yet the heat was not worse than our forefathers bore and lived to tell us of; and it is quite true that the children carried about with them neither exhausting cares in mind nor too hardly worked bodies; but they had nothing to oppose to the fiery test but the flaccid limbs and rasped nerves bequeathed to them by either liquor-drinking ancestors or those who make the stimulant of energy and overwork take the place of liquor.

CANADA MEDICAL AND SURGICAL JOURNAL.—We have received the initial number of this new medical periodical. It is edited by the late senior Editor of the *Canada Medical Journal*. The reasons for a division in the editorial camp are stated to be of a personal nature. We doubt not that the Dominion can furnish medical and scientific literature enough to support not only the new *Journal*, but others not yet in the field. The close resemblance of the new monthly to its prototype is a noteworthy feature of the enterprise.

DENTISTRY EXTRAORDINARY.—The following case is reported in the *Medical Times and Gazette* for May 4:—A surgeon was charged with having pulled out a boy's tooth against his will. He pleaded guilty. It was explained that a number of boys had annoyed the doctor,

and that he seized one of them, took him into his house, and extracted one of his front teeth against his will. The sheriff fined the accused one pound or seven days. The fine was paid.

UNGUENTUM SYMPATHETICUM, OR SYMPATHETIC OYNTMENT.—**R.** Boar's-grease, brains of a boar, powder of washed earthworms, red sanders, mummy, blood-stone a. ʒi., moss of a dead man's skull not buried ʒi., make an ointment, s.a. All wounds are cured by this ointment (provided the nerves and arteries be not hurt) thus: Anoint the weapon that made the wound daily once, if there be need, and the wound be great; otherwise, it will be sufficient to anoint it every other day. Where note, 1, that the weapon be kept in clean linen, and in a temperate heat, lest the patient be hurt; for if the dust fall, or wind blow upon it, or it be cold, the sick will be much tormented; 2. That if it be a stab, the weapon to be anointed towards the point descending; 3. If you want the weapon, take blood from the wound upon a stick, and use as if it were the weapon. Thus the toothache is cured by pricking the gums and anointing the instrument. It is to be noted that the chrystals of vitriol converted into a white powder by a gentle heat is that which is called the sympathetical powder, which cureth wounds by washing a bloody cloth in the water in which it is dissolved.—(*Synopsis Medicina*, by William Salmon, London, 1671.)

SKIN-GRAFTS.—M. Ollier, of Lyons, considers that the connective tissue and not the epidermis is the active agent in the graft, and objects to sowing a number of small epidermic grafts. He cuts them from six to eight centimetres in length, and they succeed very well; but it is inconvenient to procure such large grafts. He freezes the skin before cutting it away, and finds that it still answers well, notwithstanding this assault upon its vitality. This is a veritable autoplasty, and the healed surface has a more persistent vitality than ordinary cicatrices.—*British Medical Journal*.

PAMPHLETS RECEIVED.—Professional Ethics. The Annual Address before the Minnesota State Medical Society, by Franklin Staples, M.D., President of the Society. Pp. 15.—Report on Practical Medicine, made to the Illinois State Medical Society, at the Annual Meeting, held at Rock Island, May 21st and 22d, 1872, by T. D. Washburn, M.D., Hillsboro', Ill.

DEATHS IN BOSTON for the week ending Saturday, July 27th. 220. Males, 119; females, 101. Accident, 3— inflammation of the bowels, 1—bronchitis, 2— inflammation of the brain, 3—congestion of the brain, 2—disease of the brain, 5—burned, 1—cerebro-spinal meningitis, 3—cancer, 1—cholera infantum, 95—cholera morbus, 4—consumption, 20—convulsions, 2—cyanosis, 1—debility, 3—diarrhoea, 12—dropsy of the brain, 2—drowned, 2—dysentery, 2—scarlet fever, 2—typhoid fever, 4—disease of the heart, 2—intemperance, 1—disease of the kidneys, 2—disease of the liver, 1— inflammation of the lungs, 3—marasmus, 16—measles, 1—old age, 3—premature birth, 1—puerperal disease, 1—suicide, 2—scrofula, 1—smallpox, 5—disease of the spine, 1—syphilis, 2—teething, 2—tumor, 1—whooping cough, 3—unknown, 4. Under 5 years of age, 163—between 5 and 20 years, 20—between 20 and 40 years, 24—between 40 and 60 years, 10—above 60 years, 13. Born in the United States, 183—Ireland, 24—other places, 8.